PACKAGING

THE CAHNERS MAGAZINE FOR DECISION-MAKERS/DECEMBER 1990

EXCLUSIVE: PACKAGING'S 1991 FORECAST

What Recession? Packaging Will Grow Next Year

Trends and Forecasts For Key Industries

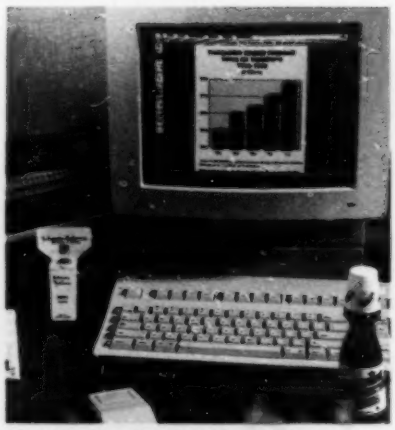
Line Equipped To Resist Corrosive Liquids

New Inks Boost Coder Performance

Pack Expo

Breaking News

PACKAGING



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Advances in coding inks: bright-white pigments and thermal-sensitive formulations. Page **58**

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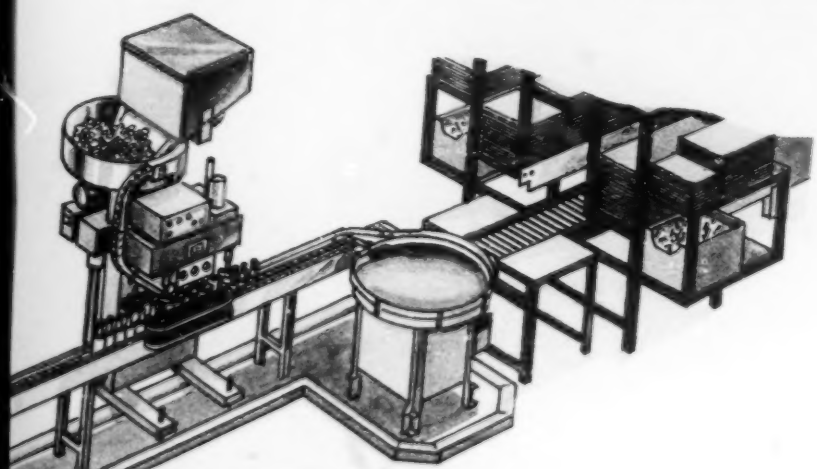

Compact line arrangement needs special design to smooth out product flow. Page **54**

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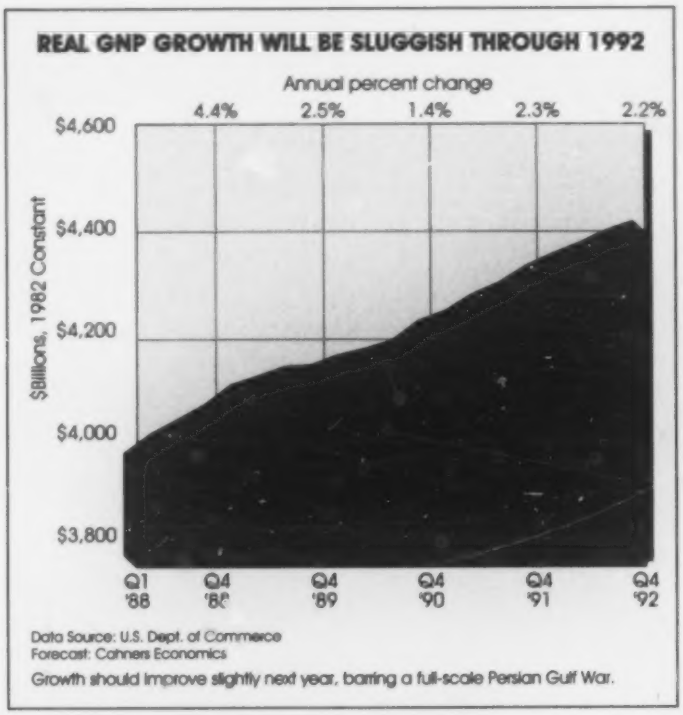
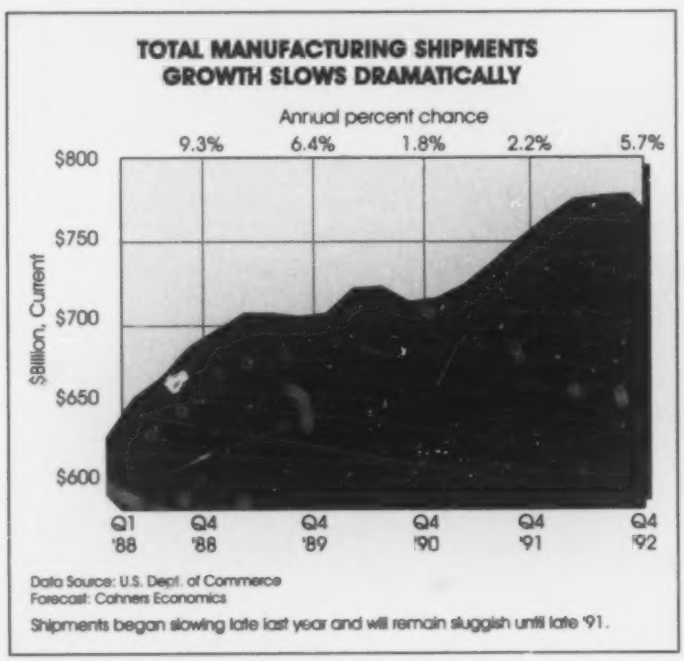
DUPONT

THE 1991 PACKAGING FORECAST

Economic questions and concerns abound, but packaging remains well-positioned for moderate growth





These are uncertain times for the economy and for packaging.

Since mid-year, the growth in output of the American economy has slowed dramatically, consumer confidence and business spending have plummeted and inflation appears a real threat once again.

These economic realities are combining with current events—the threat of war in the Middle East, the rapid rise in the price of oil and the ongoing federal budget fiasco—and leaving most Americans in a state of shock.

As a result, many economists are predicting recession.

But does this mean 1991 will bring hard times for the economy and packaging? In a word, no.

The editors of PACKAGING magazine forecast the value of packaging consumption will grow 4.4% in 1991, up from a relatively soft 3% rise in 1990. This is not a prescription for disaster.

Cahners economists are not even convinced the general economy has entered a recession. According to Cahners Director of Economics Kermit Baker, "The general business press and TV news continue to headline recession. We feel the press has once again overreacted. A national recession is still not assured at this point."

Cahners forecasts of general economic activity reflect this position. Though Cahners has revised downward its prediction for real growth of gross national product to 1.4% for 1990, it continues to project a rebound to 2.3% in 1991.

This scenario is based not on news headlines, but on long-term economic cycles. As Baker says, "The economy was poised for a cyclical rebound before the Iraq crisis and these economic fundamentals are still in place. Inventories are low. Plenty of spare capacity exists. The Federal Reserve Board has the potential to continue easing credit, especially in light of weak housing starts and low consumer confidence."

If any factor worries Cahners economists, it is the pronounced drop in consumer confidence, which on an annual basis has fallen nearly 16% in 1990, according to the Conference Board's widely followed index. Expectations can become self-fulfilling.

But Cahners believes such confidence levels have reached their low point and should begin to rise through 1991.

And in fact, most of the major indicators should follow this path through 1991 and into 1992. For example, manufacturers shipments are forecast to grow 2.2% next year and 5.7% in 1992.

On the pages that follow, PACKAGING details its annual forecasts for the growth of packaging consumption, and trends that lie behind the numbers.

The bottom line of the forecasts: For packagers, it is time to start planning for growth, not decline, in spite of headlines.

—The Editors

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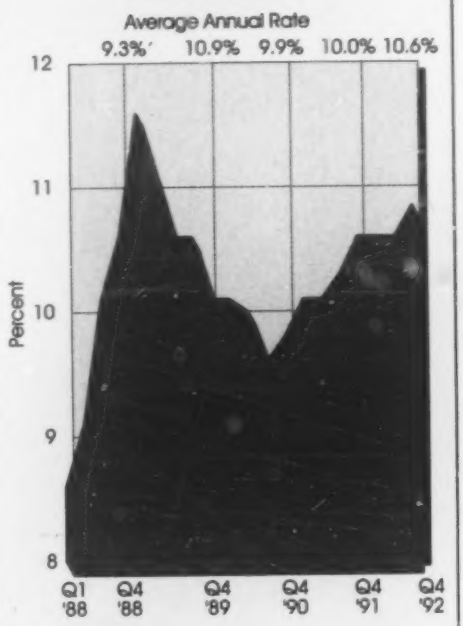
Consumer confidence has plummeted, but is forecast to bounce back in 1991

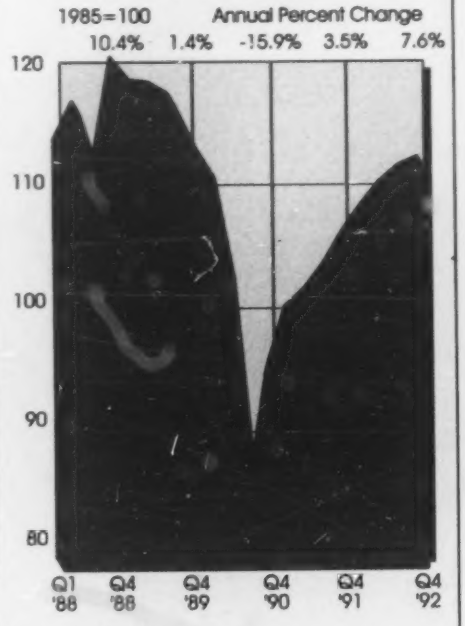
PRIME INTEREST RATE TO RISE SLOWLY



Data Source: Federal Reserve Board
Forecast: Cahners Economics

A sluggish economy is expected to temper oil-related inflationary pressures, keeping prime rate moderate.

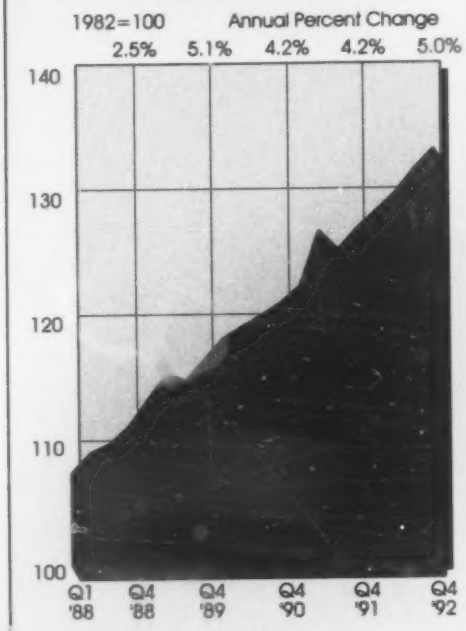
CONSUMER CONFIDENCE TAKES IT ON THE CHIN



Data Source: The Conference Board
Forecast: Cahners Economics

The Iraqi invasion frightened an already concerned consumer, but the mood is expected to improve.

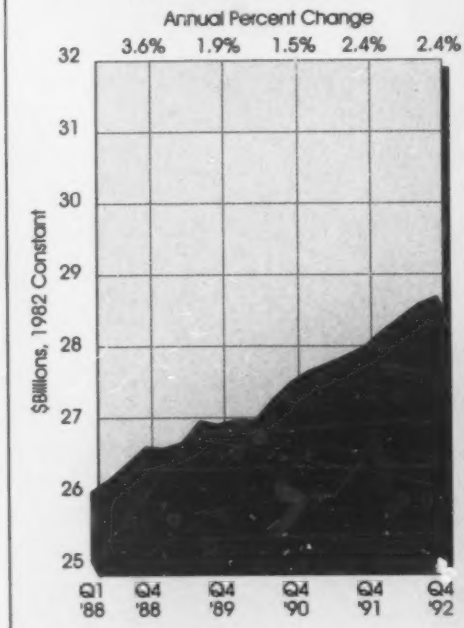
PRODUCER PRICE INDEX GAINS TO REMAIN MODERATE



Data Source: Bureau of Labor Statistics
Forecast: Cahners Economics

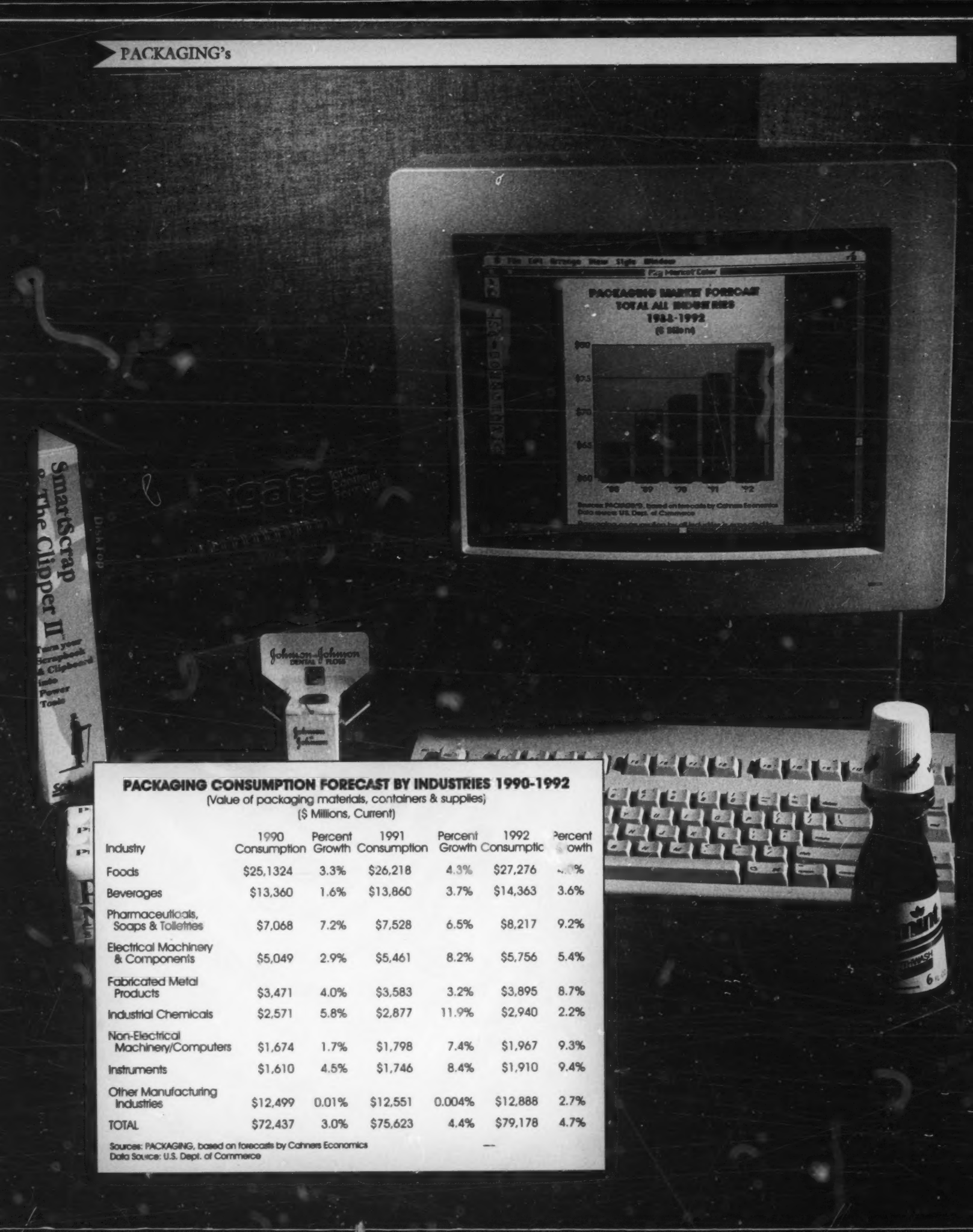
The dampening effect of a sluggish economy will hold industrial inflation at moderate levels.

PERSONAL CONSUMPTION GROWTH WILL REMAIN MEAGER



Data Source: U.S. Dept. of Commerce
Forecast: Cahners Economics

Growth in real personal consumption expenditures will rise slightly next year, but remain moderate.



PACKAGING CONSUMPTION FORECAST BY INDUSTRIES 1990-1992

(Value of packaging materials, containers & supplies)
($ Millions, Current)

Industry	1990 Consumption	Percent Growth	1991 Consumption	Percent Growth	1992 Consumptic	Percent Growth
Foods	$25,1324	3.3%	$26,218	4.3%	$27,276	[illegible]%
Beverages	$13,360	1.6%	$13,860	3.7%	$14,363	3.6%
Pharmaceuticals, Soaps & Toiletries	$7,068	7.2%	$7,528	6.5%	$8,217	9.2%
Electrical Machinery & Components	$5,049	2.9%	$5,461	8.2%	$5,756	5.4%
Fabricated Metal Products	$3,471	4.0%	$3,583	3.2%	$3,895	8.7%
Industrial Chemicals	$2,571	5.8%	$2,877	11.9%	$2,940	2.2%
Non-Electrical Machinery/Computers	$1,674	1.7%	$1,798	7.4%	$1,967	9.3%
Instruments	$1,610	4.5%	$1,746	8.4%	$1,910	9.4%
Other Manufacturing Industries	$12,499	0.01%	$12,551	0.004%	$12,888	2.7%
TOTAL	$72,437	3.0%	$75,623	4.4%	$79,178	4.7%

Sources: PACKAGING, based on forecasts by Cahners Economics
Data Source: U.S. Dept. of Commerce

Packaging **Growth** Should Edge Higher In 1991

Stability in key food and chemical industries and the start of an expansion to push consumption up 4.4%

Packagers should plan for a rebound in 1991, albeit a mild one.

Consumption of packaging is forecast to grow by 4.4% next year, to a total of $75.6 billion. This comes on the heels of a soft year in 1990, when the value of packaging consumption rose only 3%.

These are the conclusions reached by the editors of PACKAGING magazine in compiling their exclusive annual forecast for the packaging field.

In these uncertain economic times, packagers and their suppliers should note that their field is somewhat insulated from pronounced downturns in the economy. While the assumptions behind our forecast include moderate growth in real gross national product and the value of manufacturers shipments in 1991, even a recession would have only a moderate impact on packaging consumption trends.

A substantial amount of packaging is consumed by so-called noncyclical industries such as foods, beverages, pharmaceuticals, soaps, toiletries and medical instruments and supplies. While even these industries can experience slowing in the growth of shipments during economic contractions, they are affected far less than many other industries.

In fact, several of these industries will see healthy growth in shipments, and thus in packaging consumption, next year.

Pharmaceuticals, soaps and toiletries, led by a rebound in drug shipments, should see their packaging consumption grow by 6.5% in '91. Instruments, including medical and surgical devices, are forecast to consume a robust 8.4% more packaging next year than in 1990. And the foods industry will experience a 4.3% rise in consumption after a weak 3.3% gain in '90.

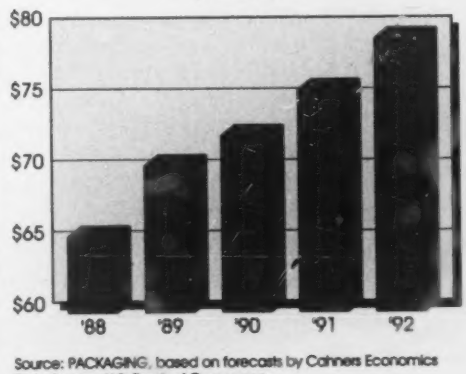
Several other industries should benefit as the general economy begins to pick up steam as the year progresses. Orders for many durable and industrial goods are expected to rise in the second half of the year, pushing up shipments and packaging consumption.

These exclusive estimates of the growth of packaging consumption by industry are based on a unique methodology developed by PACKAGING and Cahners Economics. Using data from the Department of Commerce on the value of manufacturers shipments, Cahners Economics forecasts growth in such shipments based on its econometric models. PACKAGING editors then apply different ratios of packaging costs for each industry, factoring in packaging trends in the industry, changing prices of materials and other variables.

Taken as a whole, packaging consumption is expected to show moderate and stable growth during the next two years. The trends affecting packaging in individual industries are analyzed in the pages that follow.

—Robin Ashton

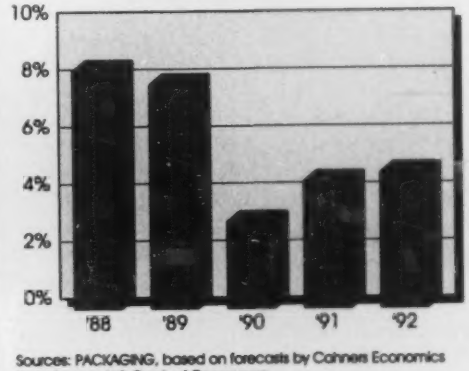
PACKAGING MARKET FORECAST
TOTAL ALL INDUSTRIES
1988-1992
($ Billions)



Source: PACKAGING, based on forecasts by Cahners Economics
Data Source: U.S. Dept. of Commerce

Packaging consumption by all industries is expected to reach nearly $80 billion by 1992.

PACKAGING CONSUMPTION
GROWTH TRENDS
1988-1992
Annual Percent Change



Sources: PACKAGING, based on forecasts by Cahners Economics
Data Source: U.S. Dept. of Commerce

After strong growth in the late '80s, the growth of packaging consumption will be moderate through 1992.

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Outstanding	492
Above Average	493
Average	494
Below Average	495

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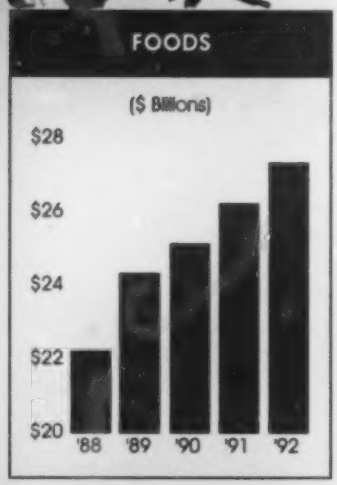


Year	Consumption	Growth
'88	$22,241	10.3%
'89	$24,322	9.4%
'90	$25,134	3.3%
'91	$26,218	4.3%
'92	$27,276	4.0%

Recession Or No, People Will Eat

Upscale tomato products are an example of value-added foods that are doing well.

Those in the business of packaging foods might have one advantage over packagers of other products in a recessionary period: People gotta eat.

And although they don't have to eat expensive food, they might choose to do so. A recession would probably prompt some consumers to switch from upscale to budget items, but many others would continue buying value-added foods.

At present, value-added food products are gaining popularity. Examples: frozen breakfasts; fresh, refrigerated pasta; gourmet tomato products, such as aseptic-packaged pasta sauces; and microwave entrees that appeal to a child's palate.

Same money, less time

Regina Hildwine, analyst for the National Food Processors Association, tells PACKAGING, "In a recession, people stop buying some luxury items and buy more economy items. But the people who are working have to work harder. They have the same amount of money but they have less time." Her conclusion: "I don't see a point when convenience foods will fall out of favor."

Her rationale bodes well for foods processors who use relatively complex packaging, since that's what is often needed to make meal preparation optimally simple.

But it also seems like good news for users of simple packaging, since that appeals to consumers who are more interested in saving pennies than seconds.

In order to dramatically alter the types of food packages the American consumer buys, a recession would have to be longer and deeper than most economists have predicted for the early '90s.

An extended recession could, intriguingly, give packaging in general a break. Right now, the environment and packaging's impact on it still occupy much of the public's attention. In tough economic times, factory closings probably would be a bigger worry than landfill closings.

Respondents to PACKAGING's consumer surveys say environmental concerns affect their buying decisions. Yet we have seen no great shift in consumer packaging preferences—steel to aluminum, plastic to glass, or paper to plastic—as a result of any material's so-called environmental friend liness. Demand for convenience remains an overriding factor.

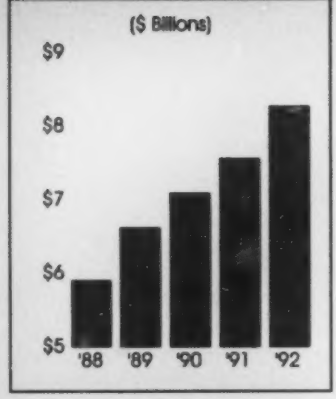
But government may be able to force changes in consumer behavior by banning packages that are most convenient and which therefore look overblown. That seems to be an especially serious threat in the foods marketplace.

Primary packaging for food products has suffered the harshest criticism of all since the latest round of ecological activism began. No legislator has attempted to ban shoe boxes or shampoo bottles, but some have at least suggested that various forms of foods packaging be outlawed.

Suppliers and end users of foods packaging are being pushed to simplify wherever possible. This challenge is one well worth facing . . . as a means of both holding prices down during this recession (if that's what it is) and forcing critics of packaging to look elsewhere for the cause of the trash mess.

—Greg Erickson

PHARMACEUTRICALS, SOAPS & TOILETRIES



Year	Consumption	Growth
'88	$5.856	9.3%
'89	$6.593	12.6%
'90	$7.068	7.2%
'91	$7.528	6.5%
'92	$8.217	9.2%

Blister packages for pharmaceuticals have some attractive features: cost-effective protection for the packager, convenience and portability for the consumer.

Pharmaceuticals Face Challenge Of Demographics

A decade ago, pharmaceutical manufacturers paid little attention to the packaging of ethical or over-the-counter drugs. The emphasis was still on developing safe and effective medicines. Ease of access, convenience and shelf presence were secondary considerations.

Today, drug marketers must package their products for use by different demographic segments of the population.

Moms look for dosage cups atop kids' cough syrups. Seniors want to be able to easily read the label and open and reclose the pain-reliever container. Adults who must take regular dosages of medication want the package to help them remember. And each container must do an adequate job of keeping out children and tamperers.

Added to these concerns are FDA label and safety requirements, internal quality-control monitoring and marketing challenges involved in introducing OTC drugs which were previously available only by prescription. To top it off, pharmaceuticals packaging is being critiqued by environmentalists.

Boom for blisters?

While it certainly isn't the cure-all for every packaging ill, the blister pack in one form or another is seeing increased use, with research firms forecasting 6% to 8% growth in the 1990s.

Originally developed to hold individual pills, tablets or capsules, the blister design has more recently been modified to hold liquid dosages. And at least one company is packaging a dose of several different tablets in a single blister.

Blisters offer drug packagers product stability and economy for lots of under 50. Consumers like the product visibility, tamper-evidence and convenience of transport.

However, some older consumers complain that blister packs are hard to open. Since the graying of America is a reality for the next decade, that issue will attract increased attention.

New materials and constructions may help solve such access problems, as well as saving packagers money. Polypropylene and PETG will likely compete with the foil and PVC now used.

Bottles for OTC liquids seem to be in the midst of a modest shift back to glass from plastic. Some interesting new container shapes make the bottles easier for seniors to hold.

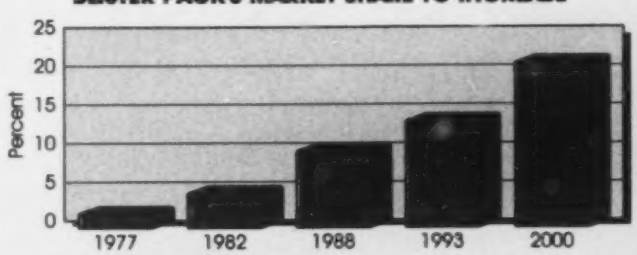
Closures could be on the verge of a design revolution as packagers take the needs of adults and seniors into account when designing child-proof caps.

As drug packagers look to the future, they must keep in mind the dichotomy between consumers' 1980s desire for tamper protection and their 1990s scrutiny of all supermarket products for signs of overpackaging.

For instance, can outer cartons for bottles and tubes be dispensed with? Can blisters use fewer layers and maintain their integrity? Drug marketers may find that developing the wonder drugs was only the start.

—Melissa Larson

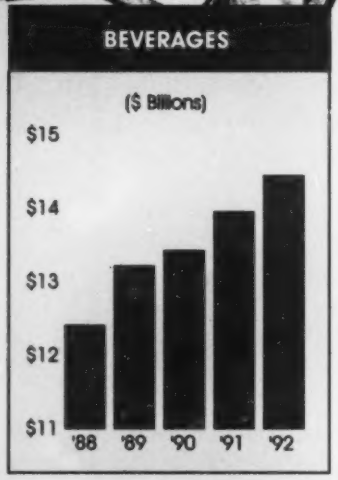
BLISTER PACK'S MARKET SHARE TO INCREASE

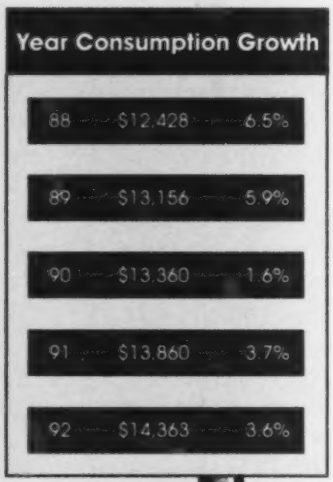


Source: The Freedonia Group

Blister packs will grab a greater share of the drug packager's dollar in the years to come, according to one research firm.

Container Materials Vie For Beverage Dominance





The beverage industry finds itself dealing in a fiercely competitive marketplace. Things are tough all over.

You could be a vintner or a brewer and have to deal with rapidly declining sales or, at best, minimal growth. You could be a soft-drink or fruit-juice bottler who, despite 2.5% growth last year, still has to survive in a market dominated by three companies. Or you could be a bottled-water packager and have to find a way to make your product stand out in a field experiencing more than 15% annual growth.

Despite the downturn for some beverage categories, several trends point to healthier growth in packaging consumption. New products will continue to be a driving force, especially those that meet consumers' current thirst for lighter, healthier drinks.

In the first nine months of this year, industry observers tallied 871 beverage introductions. That's nearly 150 more than in the same period last year. Chief among these new contenders for market share are flavored sparkling waters, blended juice drinks and sports-type isotonic beverages. The hottest new drink, ironically, is iced coffee.

In its efforts to wrest maximum sales from the marketplace, beverage packagers are continuing to employ new multipacking options and different sizes for different markets. Nearly every container volume or quantity can be justified, especially in the low-growth beer and soft-drink fields.

Iced coffees are among the hottest new beverages hitting retailer's shelves.

Flashy packages sell

These two markets also make liberal use of flashy (and often costly) packaging design to attract attention. On the beer side, in-package games by Heileman and others were a major part of summer promotions. Pepsi's Cool Cans and Coke's ill-fated MagiCan promotions only served to strengthen their already overwhelming dominance in soft drinks.

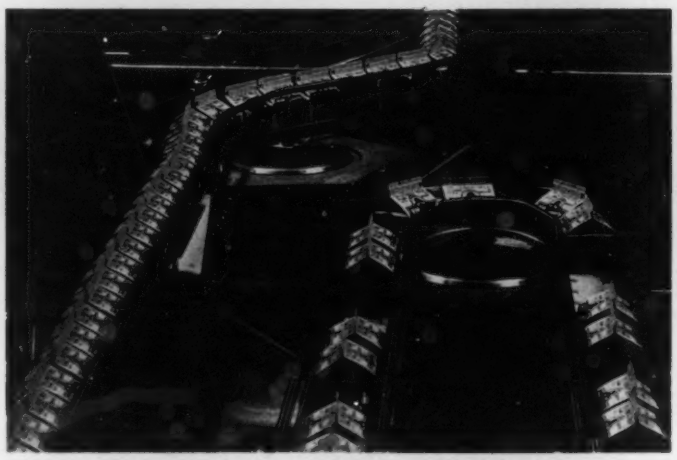
Where the beverage market is heading in terms of container materials may be anyone's guess. Packagers seem to be hopping from one material to another—glass to plastic, plastic to glass, composite can to aluminum, and even aluminum to steel—all in an effort to gain any sales advantage.

After a nearly 100% growth in PET bottles since 1985 to 10 billion units, shipments are expected to rise only 2.5% this year, based on U.S. Commerce Dept. figures. On the other hand, shipments of aluminum cans for soft drinks should grow by almost 10% to 45.7 billion.

New developments, as well as successful marketing, by steel-can manufacturers have finally given the material some prominence in the beverage-container mix. Nearly 3 billion steel cans were shipped last year, and an upward trend may continue as solid-waste legislation and deposit laws take effect.

After an iffy couple of years, glass beverage containers are staging a comeback as well. Nearly 23 billion units for beer and soft drinks will be shipped this year—up about 1 billion from 1989. Glass containers for liquor and wine will decline by 6% to 3.4 billion units as the market for alcoholic beverages continues to slow.

—Mark Spaulding



Single-serving gable-top cartons run at 100 per minute through a modern packaging line at a Wisconsin dairy.

Manufacturers Concentrate Environmental Efforts

The makers of soaps, cleansers and other household chemicals face a barrage of environmental challenges on two fronts. Activists are demanding that not only should the packaging be reduced, recycled or recyclable, but the products themselves should be as environmentally benign as possible.

On the packaging side, at least, a lot has been done to answer those demands. Packagers are responding with a flurry of product introductions that highlight source reduction and recycled package components.

"Concentration" is the name of the game. Procter & Gamble led off the drive with its debut of a Downy Fabric Softener concentrate in a gable-top carton. The idea builds on the success of concentrated liquid laundry-care products in film pouches that have been successful in Europe since 1988.

Now, concentrated products—and the resulting source-reduction from smaller packages—have moved into the powdered category as well. Ultra laundry detergents under four P&G brand names are in Southern and Western test markets. The recycled-paperboard cartons are about half the size of a regular detergent package. The latest entry is Lever Bros.' Wisk Power Scoop. It also features a recycled-paperboard carton and comes with a coded, recyclable plastic scoop and carrying handle.

Source-reduction techniques for packaging household chemicals are also showing up as bulk sizes of powdered products and large bag-in-box containers for liquids. Dial Corp.'s Purex detergent in a 2-gallon size is one example. At the very least, companies are making sure a recycled-paperboard symbol is proudly displayed on the package.

Plastic containers with recycled content might grow in popularity with packagers and consumers alike. The tight market for post-consumer plastic should open up as more more curbside-collection systems begin to take in the used containers.

Concentrated detergent comes in a smaller, recycled paperboard box.

One new development in this area is P&G's Spic and Span Liquid in a two-layer bottle using recycled HDPE as the inner layer. Close on its heels is Lever Bros. which has also aggressively begun a program of incorporating recycled content into its plastic containers.

In terms of container materials, HDPE will maintain its dominance for most household chemicals, growing at about 3% next year, according to The Freedonia Group. Multilayer and high-barrier containers will open up markets for hydrocarbon products such as harsh cleansers and volatile polishes. The clarity of PVC will be a strong selling point for this container material, with demand growing by 3.4%, according to Freedonia.

All environmental concerns aside, household chemical-makers will continue to emphasize more convenience and a stronger shelf presence. The no-label look of in-mold labeling, more dispensing closures, easy-to-use measuring caps, greater use of fluorescent colors and metallized-paperboard cartons should keep this particular supermarket aisle bright and inviting.

—Mark Spaulding

Use of recycled plastics, mainly HDPE, for multiple-layer, laundry-product jugs will expand in 1991.

Cosmetics Consolidate, Move Upmarket

Competition among pretty faces is fierce, as it is for packages of things that promise to make them even prettier. Nearly 20,000 cosmetics and personal-care products jostled one another for the consumer's attention last year, and they got it: Pamper-yourself potions generated an enviable $17.5 billion in sales.

But perhaps the shelves are too crowded. Industry observers tell PACKAGING that consolidation of product lines is a continuing trend.

That is to say, a cosmetics manufacturer that once marketed a bewildering variety of eyeshadow packages under a dozen different brand names either has reduced that number of choices significantly or is planning to do so.

The medium is the message

If any products are overpackaged, cosmetics may be. So far, no legislator has attempted to restrict this practice. However, says one cosmetics-industry observer, "Some people are beginning to ask, 'Is all this packaging really necessary?' "

Probably. There may be no greater adherence to the philosophy that the medium is the message and the package is the product than there is in the cosmetics business. After all, would any user of makeup consider paying forty bucks for an ounce of biege paste if it didn't come in a gorgeous glass vial?

There's more to success in this rough market than that, of course. New-product formulation is a high-technology pursuit. Without distinctive packaging, though, those differences could be easily overlooked.

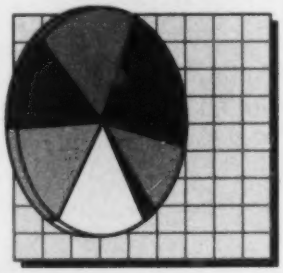
Moving upmarket by means of spruced-up packaging seems to be a growing trend in cosmetics.

Skin deep

The value of skin-care product shipments has been growing at an annual rate of 12% since 1982; sun-care products, by more than 16%.

HAIR, SKIN CARE LEAD FIELD

Total manufacturer sales



- Skin care 18.8%
- Hair care 22.1%
- Makeup 13.5%
- Fragrances 15.4%
- Oral care 10.6%
- Nail care 2.5%
- Other products 17.1%

Source: Kline & Co.

Care of the hair and skin leads cosmetics and toiletries in sales.

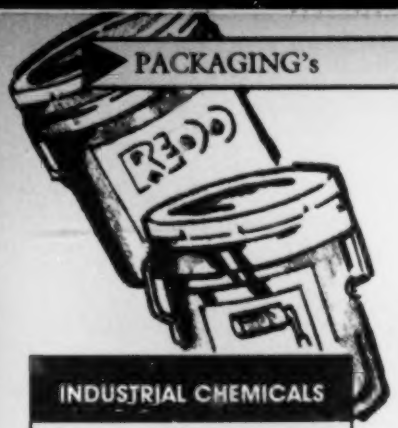
That's expected to continue.

According to the U.S. Dept. of Commerce, constant-dollar shipments of cosmetics in general are expected to grow at a respectable annual rate of 3.4% through 1994.

Prestige brands are looking especially good. Companies that once marketed products as middle-priced have moved them upmarket through little more than package redesigns. One example is a utilitarian skin lotion made attractive enough to vie for consideration as a holiday gift by means of a fancy glass decanter.

Other package redesigns may soon make their debut in keeping with changes in U.S. demographics. The market for products designed to suit darker skin and "ethnic hair" is growing faster than the rest of the market. Two other niches offering significant growth potential are male and older consumers. How long will it be before we see Oil of Olay for Men? Oil of Olay Silver?

—Greg Erickson



Industrial Packagers Pony Up For Compliance

Year	Consumption	Growth
'88	$2,351	7.4%
'89	$2,429	3.3%
'90	$2,571	5.8%
'91	$2,877	11.9%
'92	$2,940	2.2%

Shippers of industrial chemicals face all the normal pressures to control packaging costs, plus an additional headache: meeting increasingly stringent regulations for overseas exports.

With revised U.N. and E.E.C. packaging regulations phasing in over the next two years, exporters of industrial chemicals, especially Group 1 hazardous substances, must decide whether to specify two types of packaging for the two markets or design all packaging to comply with the latest worldwide regulations.

The Department of Transportation's recent proposal to adopt the U.N. regulations has had the effect of making up many packagers' minds.

"We're testing all of our packaging, both domestic and for export, to comply with the U.N. standard," said a packaging manager at a major chemical exporter. "It's time-consuming and expensive, but we hope to be in total compliance by the end of 1991."

Users of so-called combination packaging for chemical export must have all such containers separately certified by an approved package-testing laboratory. This new regulation largely replaces the practice of self-certification. Some chemical packagers are splitting the testing costs with their packaging suppliers. Others are bearing the expense themselves.

New Pennsylvania and New Jersey state regulations regarding labeling data for hazardous chemicals also concern packagers. Other states are likely to follow suit in the recent "right to know" labeling trend. This type of regulation could affect hundreds of products and involves scrapping current label inventories for approved ones, for shipping to each state.

Unfortunately, the added cost of compliance is immediately apparent on the bottom line. Industrial chemical packagers we spoke with estimate their packaging costs will increase from 12% to 18% this year.

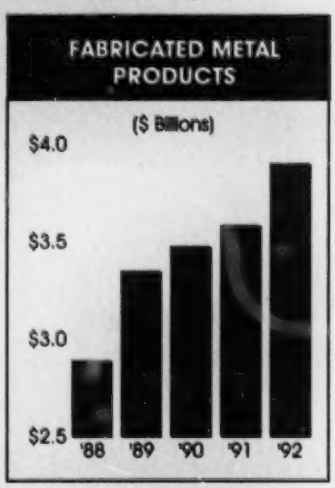
Elsewhere, container design emphasis is on performance and disposability wherever practical. Environmental concerns, here as everywhere, are leading industrial packagers to consider what will become of their drums and multiwall bags when the contents are used up. Makers of steel and fiber drums and reusable plastic outer drums are touting reusability.

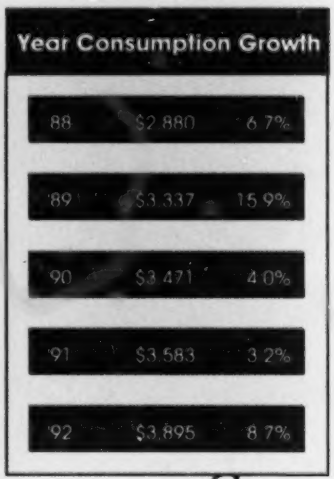
Graphics are also playing a greater role, even for these so-called non-consumer packages. Four-color graphics on film-lined cartons and multiwall bags of chemicals express brand identity to the end user.

However, as U.S. government agencies help establish worldwide safety standards for these chemicals, the performance of the package in protecting the contents—as well as protecting the public from the contents—will remain paramount.

—Melissa Larson

Shippers of industrial chemicals must not only comply with new international packaging regulations, but consider what will become of the containers after use.





Hardware Retailers Like Looks Of Source Reduction

The environment is still an issue across all industries—including hardware. More and more, hardware retailers are requesting packaging that is sensitive to environmental perceptions. This includes packages that exemplify source reduction, as well as those that are recyclable or use recycled materials.

To some extent, retailers are ignoring the amount of shelf space needed for large packages as long as those packages use less material. For example, packaging a faucet in a skin pack may use less paperboard overall than a folding carton, but the skin pack would probably take up more display space.

For now, blisters and clamshells are holding their own, according to Steven Ruch, packaging engineer for 20th Century Companies, manufacturers and distributors of Chicago Specialty plumbing repair products. "Two or three years ago when environmental concerns were not as big of an issue, clamshells seemed to be the package of the future," Ruch says. "If someone asked me what I thought the package of the future was now, I wouldn't say. But the clamshell is still a good package."

However, he says, "With the perception of plastics in the retail marketplace, we may see fewer clamshells introduced. At 20th Century, we might try to do creative things with paperboard cartons and cards."

The clamshell's biggest selling point is product visibility. Customers want to see what they are going to buy because it helps give them the confidence to install it themselves.

Whether transparent packaging is used or not, the do-it-yourselfer wants step-by-step instructions right on the package, written simply and illustrated clearly.

The more information on the package, the more easily the customer can self-select his purchase. Many times the package is the sole means available to the consumer of figuring out how the product works.

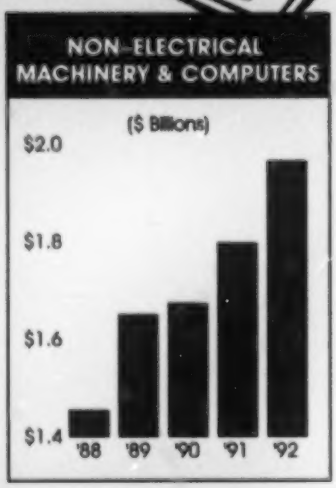
Consumers do return to familiar products and packages. Ruch says, "Consumers don't have brand loyalty like they did 20 years ago. But they still recognize brand names and feel more comfortable with a package that they've seen or heard of before."

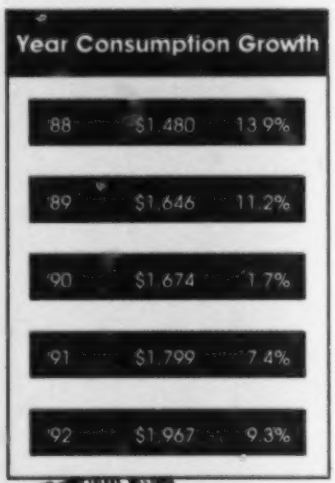
Most hardware items already incorporate UPC codes. But if they don't, they should. Hardware stores, home centers and mass-merchandisers have moved from SKU coding almost entirely to standard UPC codes.

Bar codes have moved beyond individual items, too. Use of bar codes to identify shipping cartons is gaining ground. Whether the carton ships to a retailer's distribution center or directly to the store, carton-level bar codes facilitate receiving and locating products, as well as raising the speed and accuracy of inventory.

—Lisa McTigue Pierce

Pictures and simple instructions on the package help the customer make his hardware buying decision.





Corrugated and cushioning are the two chief components of computer-hardware packaging. As computers shrink from mainframe to notebook size, they use less of these materials.

Laptops Flicker In Dim Computer Market

To get a feeling for what's happened in the computer business over the past four years or so, talk to a Boston-area realtor.

During the town's high-tech heyday in the middle '80s, housing demand was so great that a Port-A-John standing anywhere along Route 128 seemed a strong candidate for condominium conversion. Real-estate has since taken its lumps nationwide, and Boston has been, well, beaned.

One big reason: The quotation marks at the beginning and end of the "Massachusetts Miracle" were computer-generated.

Last summer, employment in the U.S. computer business hit its lowest monthly level since the middle of 1983. Further cutbacks are predicted.

Periodic waves

It used to be that breathtaking new technology came in periodic waves, regularly carrying existing equipment off into obsolescence and stimulating new rounds of replacement sales. Computer marketers used to drop hints of things to come in order to keep technofreaks drooling. But at this moment, no one seems to be touting "vaporware."

Overseas markets, which generally account for 40%-50% of domestic computer companies' sales, are relatively strong. However, U.S. sales success in other countries is being partially offset by their gains here: Imported systems are as troubling as a hacker's virus.

According to Cahners Economics' newsletter *Early Warning Forecast*, U.S. business bought $39.8 billion worth of computers and peripheral equipment in the second quarter of 1990—a drop of 1% from the year before.

Personal computers, the largest segment of the computer hardware market, have been hit especially hard. A survey conducted by the Cahners magazine *Datamation* and research firm Cowen & Co. shows that growth in shipments of PCs plummeted from a positive 21% in 1987 to a negative 5% one year later. For '89 and '90, shipment growth was positive but weak.

Although no one seems to be expecting a big uptick, Cahners Economics predicts a "better" 1991 and 1992, as does the U.S. Department of Commerce.

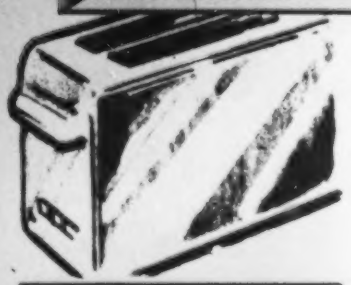
Some of the biggest players in the field are hoping to finally crack the home-PC market, which is tough but huge. Newly simplified machines and sophisticated selling techniques may prove successful, unless consumers hold out till Christmas 1991.

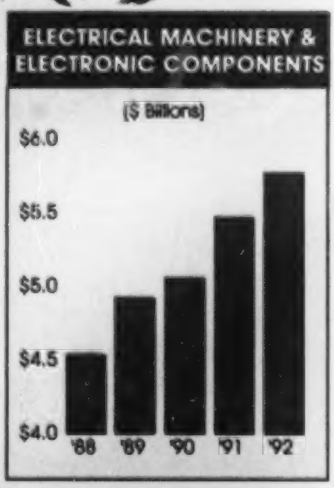
One little bright spot

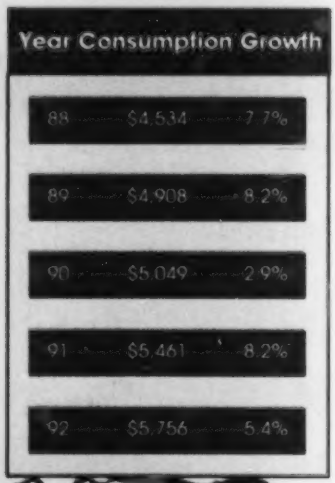
If there is a bright spot on the computer horizon, it's the tiny screen of the business person's laptop. The dollar-value growth of laptops is projected at better than 60% over the next 10 months, but it will be some time before revenue from laptop sales can make up for slumps elsewhere. As an analyst for Cahners Economics puts it, "The computer industry is producing more units but smaller units. Output is going up while the dollar value of those shipments is dropping."

In terms of packaging materials, though, units shipped is probably a more meaningful measure of potential than dollar value. The primary components of computer packaging are corrugated and cushioning. A lot of little computers use more packaging than a single big one.

—Greg Erickson







Appliance Packagers Get Smarter For Less

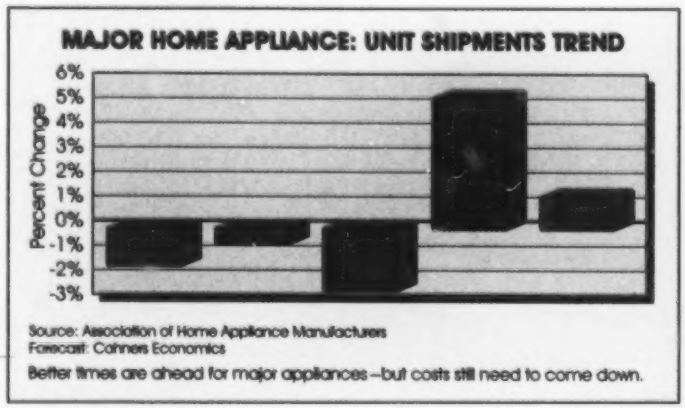
To enhance and protect home appliances, large and small, from manufacture until you plug them in, packaging plays a number of important roles.

Large appliances, including home audio/video, rely on much the same type of protective packaging as is used for computers. Plastic foam cushioning and corrugated cases are the standard.

PACKAGING is forecasting modest growth in appliance shipments for 1991-92. However, that certainly won't relieve marketers of the need to slash costs wherever possible. The trick is to reduce the amount of packaging material and still protect the product.

More sophisticated testing methods are giving appliance marketers a better idea of the real distribution hazards their products will face.

Cleverly designed foam edge protectors and corner pieces have largely replaced the practice of enveloping the item in foam. For secondary protection, appliance packagers are increasingly swapping full cases for corrugated top and bottom trays over sleeves or surrounded by shrink wrap.



Source: Association of Home Appliance Manufacturers
Forecast: Cahners Economics

Better times are ahead for major appliances—but costs still need to come down.

Small appliance salesman

Packagers of small appliances know that the package must function as an advertisement—not only protecting the item but boosting the brand's reputation. A family graphic look to paperboard cartons leads consumers from toasters to irons to can openers in the same line, getting the selling message across when there's no salesperson to be found.

While many appliance packagers experimented with preprinted linerboard for that extra graphic punch in the late 1980s, many have gone back to laminated labels on the sides of the container for cost reasons. Others stick with bleached corrugated featuring two-color graphics.

Circuit board safety

Electronic components, such as individual circuit boards, also fall under this manufacturing category. For these high-value items, antistatic foam and bubble wraps or treated shielding bags are popular.

The increased scrutiny of environmentalists has led some packagers of electronic components to experiment with alternatives to plastic foam or bubble wrap. The protective performance of many of these cellulose-based materials, such as shredded paper, for electronics is unproven.

However, reusable, antistatic-treated tote boxes of kraft or plastic are alternatives that are proving practical for repetitive shipments between user and vendor, or between different plant locations within the same organization.

—Melissa Larson

A family graphic look for packaging of small home appliances reinforces a brand image and stimulates sales in modern retail outlets, where the sales clerk is a vanishing breed.

Packaging Growth Fluctuates For 14 Other Industries

Packaging consumption by the remaining industries we track for our annual forecast will grow collectively by less than 1% next year to about $12.6 billion. Individual growth rates, however, vary widely—from a −2.4% on up to more than 11%. A closer look at each area is a must.

The primary materials industries including metals, paper products, rubber and plastics, petroleum, stone, ceramics and glass, will spend an additional $250 million on packaging in 1991. This is a healthy increase of 8.7%. Consumption by durable-goods packagers is another story. We expect about a $200 million decline by apparel, furniture, shoe, lumber and wood, automotive, sporting goods and toy makers.

Marketing more distinctive products to combat the perception of selling commodity goods is a driving force for paper-products makers. After all, one paper napkin tends to look like every other paper napkin. ScotTowels in a Box is one effort in this vein. The company took an institutional product and repackaged it in a facial-tissue-style box. Products such as Fantastik S'Wipes, Pledge Dusters and Lysol Bathroom Touch-Ups have added a whole new dimension to the packaging of what is basically a paper towel.

In the first nine months of this year, analysts tracked 117 new paper products for the retail market. That's up almost 50% over the same period in 1989, and many manufacturers are capitalizing on paper's perceived environmental acceptability.

Higher material costs for plastic overwraps and corrugated will drive packaging expenditures for tobacco products up 3.2% next year. Continued health concerns over smoking have not dampened the influx of new products. Twenty-four new tobacco items hit the market in the first nine months of 1990.

In the transportation sector, 1991 sales forecasts have been cut by auto-industry officials, reflecting a slowing economy and 30% higher gas prices since Iraq's invasion of Kuwait. Domestic auto sales may grow only 3% next year.

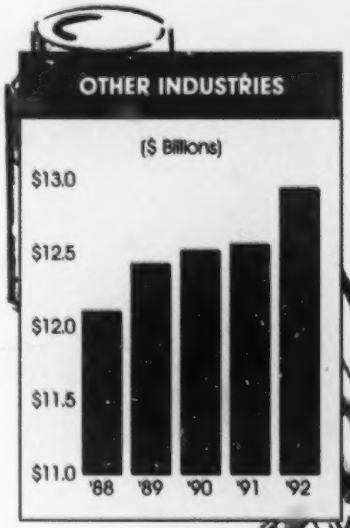
We see packaging growth of 2% for transportation to $753 million on the strength of the automotive aftermarket. In shakier economic times, many consumers will forego a flashy new set of wheels in favor of pumping new life into the ol' clunker. Packaging certainly becomes more complex and must work harder to sell the product in the retail parts aftermarket.

A decline in packaging growth for petroleum products to only 3.9% next year reflects the slowing transportation market. Several marketers have begun touting their use of recycled plastic for motor-oil containers.

Collectively, the durable-goods industries we track will not fare well in 1991. A drop in new-home construction to negatively impact lumber and wood shipments. Furniture sales have also been hurt. For this reason, manufacturers are trying new ways to reduce packaging costs while ensuring protection for their high-value merchandise.

On the bright side, sporting goods are experiencing robust growth as exercise and health concerns become more ingrained in the American lifestyle. Toy and game sales remain brisk on the strength of the so-called mini baby boom. To help sell these products in clerkless warehouse stores, intricate die-cuts in strategic places allow kids to try out a toy without removing it from the protective packaging.

—Mark Spaulding



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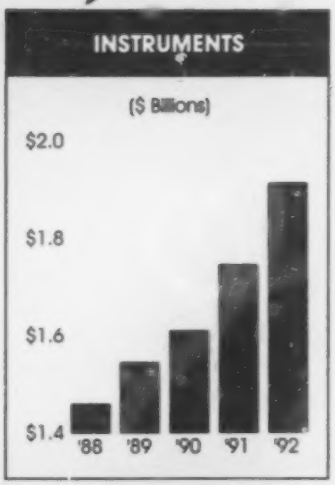
PACKAGING CONSUMPTION OTHER INDUSTRIES 1990-1992
(Value of packaging materials, containers & supplies)
($ Millions, Current)

Industry	1990 Consumption	Percent Growth	1991 Consumption	Percent Growth	1992 Consumption	Percent Growth
Paper Products	$932	2.0%	$1,038	11.4%	$1,102	6.1%
Rubber & Plastic Prods.	$916	-4.5%	$983	7.3%	$1,038	5.6%
Tobacco	$741	2.9%	$765	3.2%	$789	3.1%
Transportation	$738	-0.6%	$753	2.0%	$781	3.7%
Petroleum Products	$443	10.3%	$461	3.9%	$503	9.3%
Stone, Clay & Glass	$329	1.5%	$349	6.2%	$356	2.0%
Other Mfg. Industries	$8,401	0.8%	$8,202	-2.4%	$8,285	1.0%

Sources: PACKAGING, based on forecasts by Cahners Economics
Data Source: U.S. Dept. of Commerce



Year	Consumption	Growth
'88	$1,448	8.5%
'89	$1,540	6.4%
'90	$1,610	4.5%
'91	$1,746	8.4%
'92	$1,910	9.4%

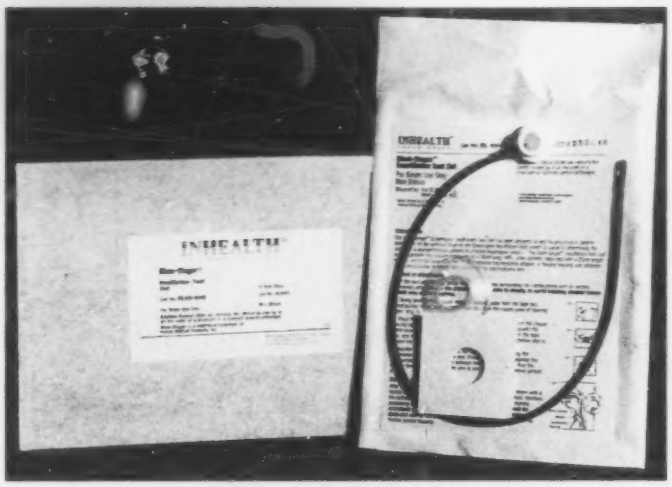
Medical Market Wants Convenience, Uniformity

How a product is packaged is not usually a life-and-death decision. But the way a package performs in an operating room is of paramount importance.

Convenience is crucial, says Bruce Corini, manager of packaging development at Howmedica. One way packagers can boost convenience is to supply hospitals with products that are already sterilized. "There's a trend in the industry to presterilize as many products as possible," Corini says. "This creates less work for the hospital staff and gives them one less thing to worry about."

Within this trend is another: Ethylene oxide is being phased out as a sterilization method because of environmental concerns. This presents both challenges and opportunities to medical packagers as they look for new materials that can withstand other sterilization methods, such as gamma or electron-beam radiation.

Both of the two leading packages for medical products—pouches and thermoformed trays—offer advantages to the customer. Thermoformed trays provide protection, organization (especially for products with multiple components) and an attractive appearance. Pouches generally require less space.



Pouches are still an inexpensive yet effective package for many medical products. Materials need to be versatile to withstand alternative sterilization methods.

Hospitals and medical offices allocate a certain amount of room for storage and inventory based on the product's previous package. According to Corini, one of their biggest complaints is inconsistent sizing. The same part may not be in the same size package from shipment to shipment.

Thermoformed trays protect a device's sharp edges.

Sealable/peelable lidding is an area of flux as packagers continue to look for alternative materials. Corini cautions, "Look for alternatives, ask suppliers and research new materials—but go through all your own testing to guarantee that the material performs as needed."

With more packagers entering the medical field, brand differentiation has become more difficult. Intense competitive pressure is another reason packagers are seeking alternative materials as cost cuts reach the packaging department.

What about the environment? The recyclability of polyester thermoformed trays, for example, is not much of an issue. Used packages from an operating room are considered medical waste and must be disposed of in that manner. But in other instances, recyclability can only help and not hurt.

—Lisa McTigue Pierce

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